A
DISCOURSE
ON THE
BEST METHOD of proſecuting
MEDICAL ENQUIRIES.

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ON THE

BEST METHOD of proſecuting

MEDICAL ENQUIRIES;

DELIVERED BEFORE THE

MEDICAL SOCIETY
of LONDON,

At their ANNUAL MEETING,

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GENTLEMEN,

TO demonſtrate the means of improving ſo comprehenſive a ſcience as medicine, and, by ſhewing the preſent ſtate of our knowledge and ignorance *, to lead the way to future improvement, is a taſk equal to the higheſt abilities. Animated, however, with the deſire of fulfilling in ſome degree your deſign in appointing me to deliver this diſcourſe, I ſhall endeavour to inveſtigate the true method of proſecuting medical enquiries; ſenſible that, in ſo doing, I ſhall beſt an-

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* The Novum Organum of lord Verulam, wherein the deſiderata of philoſophy are pointed out, was perhaps the boldeſt deſign ever ſucceſsfully executed by human ingenuity.

ſwer the intention of this Society, which has no intereſt ſeparate from the Art.

In this reſearch, it muſt be acknowledged, a large field is opened for the imagination. So many amendments in the old paths, and ſuch a number of new untrodden ones might be pointed out, that fancy would ſcarcely need the aid of judgment to make what might be ſaid ſeem ſufficiently inſtructive; but, as I wiſh to prove rather uſeful than amuſing, I propoſe to examine the general hiſtory of medicine, and to find out thereby what means have hitherto proved ſucceſsful for its improvement. Abſtract reaſoning might readily deceive us, a ſlight miſtake in the firſt principles, making a conſiderable one in the concluſion; but when we take all our data from what has already happened, ſo long as nature is the ſame, and mankind in different ages bleſſed with nearly equal degrees of genius, our concluſions muſt be right. I know that men of weak underſtandings are always ready to ſuppoſe the preſent generation wiſeſt, the prejudices of former ages being conſpicuous to them, whilſt thoſe of their own are totally undiſcovered; from this miſtake they are conſtantly attempting to revive methods, which have been formerly tried without ſucceſs, and vainly think they ſhall be able to prevail therein, though numberleſs others failed before them. But let us diſclaim this vanity of philoſophic ignorance, which knowing not the bounds of human underſtanding, can ſet no limits to the ſallies of a luxuriant fancy.

The writers on medicine may be aptly divided into two claſſes, the theoretical and practical; and as the former are much more numerous than the latter, I ſhall pay them the deference, which they uſually claim, and which has been moſtly allowed by their cotemporaries, of placing them in the firſt point of view.

By Theoretical Phyſicians, I mean principally thoſe who pretend to draw their practice from ſuppoſed alterations in the ſolids or fluids of the human body, not obvious to our external ſenſes. The diviſion which is attempted to be made between theory and hypotheſis, is only intended to bewilder, by eſtabliſhing a diſtinction without a difference, ſo that at all events there may be ſome opprobrious term upon which the errors of the former may be caſt; and, it may with juſtice be aſſerted, that all theories are hypothetical.

An attempt to give any diſtinct ſketch of the numerous theories which have, in various ages ruled the medical world, muſt, at firſt view, appear perfectly inconſiſtent with the limits neceſſary on the preſent occaſion; yet if a proper method of arranging them can be diſcovered, I am convinced they will ſhrink into a very inconſiderable ſize, their apparent magnitude being only derived from the ſame doctrines repeatedly advanced as new, merely by a ſlight change of terms.

The firſt theories in medicine can ſcarcely be mentioned without a ſmile. Superſtition, which ſpeedily made its way into religion among the deſcendants of Ham, introduced its corruption likewiſe into medicine. Hermes, Apollo, Æſculapius, the Egyptian kings and prieſts all made uſe of charms *: diſeaſes being, as they thought, inflicted by the gods, it became neceſſary to appeaſe them, and obtain their aſſiſtance, by uſing certain verſes, or amulets. As diſorders often abated by the efforts of nature, and gave by that means undeſerved credit to this mode of cure, and as it was leſs irkſome than any practical one could be, it is not ſurpriſing that in thoſe ignorant times, opinions, which flattered both

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* Origen contra Celſum, lib. 8. Julius Firmicus, l. 4. Plinii Hiſt. Nat. lib. 25. cap. 2. Galen de Simp. Med. fac. l. 9. Ætius Tetrab. 1. ſerm. 2. c. 35. Artimedorus de Somniorum Interpretatione. Apollodorus, lib. 2. de Melampo. Cato de Re Ruſtica. All the moſt ancient theory of medicine ſeems to have been ſuperſtitious. See Le Clerc Hiſtoire de la Medicine, part 1. lib. 1. Aurelius Victor. Selden de Diis Syriis. Serenus Sammonicus de Abracadabra. Pauſanias Geogr. l. 8. Pind. Pyth. od. 3. Jamblicus de Myſteriis Ægypt. Buxtorf. Synag. Jud. Joſephus, lib. 8. cap. 2. de Solomone. Crantz, Hiſt. of Groenland, b. 3. c. 5.

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the inclination and ſuperſtition of the patient, ſhould be adopted with avidity. But about five hundred years before the Chriſtian æra, Philoſophy beginning to flouriſh under Thales, Pythagoras, and their diſciples *, it was impoſſible ſo great a branch of natural knowledge, as medicine, ſhould eſcape their inquires. The former theory, fit only for the barbarous period in which it was introduced, now gave way to one apparently more rational, though in no reſpect more conducive to the healing art.

The elements of all bodies, being according to them, fire, air, earth, and water; to which the four primary qualities of heat, cold, dryneſs, and moiſture, were affixed; health was made to depend upon a proper mixture and proportion of theſe in the human frame, whilſt any of them exceeding, or being deficient, produced diſeaſes. This theory, though it might be ſufficient for thoſe Philoſophers,

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* Empedocles, Alcmæon; ſee Galen Hiſt. Philoſoph.

who, not being practitioners in medicine, wiſhed only to give ſuch a view of it as would agree beſt with their general ſyſtem of the univerſe, yet was found totally inadequate to the purpoſes of the Phyſician. Hippocrates therefore, who is falſly ſuppoſed by ſome to have ſevered the junction of Philoſophy and Medicine, fond of ſyſtem, like his predeceſſors, and a man of acute genius, with minute practical obſervation, founded that theory * of health and diſeaſes depending upon the fluids, which was afterwards formed by Galen into the moſt complete ſyſtem that human imagination ever produced. As this ſyſtem reigned almoſt without controul, for above a thouſand years, as moſt of our terms, and many parts of our preſent theories are ſtill derived from it, and

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* Polybius, ſon-in-law to Hippocrates, ſeems to have done much to perfect this ſyſtem, at leaſt if he be the author of the fourth book on diſorders, and ſome others which are found among the works of Hippocrates. See Le Clerc, Hiſt. de la Med. part 1. liv. 3. cap. 30. Erotian, Galen, and Mercurialis may be conſulted on this point.

as it is neceſſary to be acquainted with it, in order to underſtand innumerable authors who wrote during that period, I hope I may be allowed to give a ſhort view of its leading principles, and a ſummary of thoſe arguments which have cauſed it to be laid aſide.

According to the abovenamed authors, * the human body is compoſed of four ſubſtances, analogous to the four general elements of all bodies already mentioned, each of which poſſeſſes one of the four primary qualities in a high, and another in a leſs degree. Of theſe four ſubſtances, the blood is the principal, which reſembling air, is moiſt and warm; the pituita having an affinity to water, is cold and moiſt; the yellow bile, ſimilar to fire, is hot and dry; and finally, the black bile agrees with earth, in being dry and cold.

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* See alſo, Avicenna, Abbas, Rhaſes, Avenzoar, Iſaac, Moyſes, Averrhoes, Damaſcenus, Nonius, Abhenguefit, Meſue, Alchindus, Elluchaſes, Alſharavius, Serapion, Conſtantinus.

Health and diſeaſes are therefore made to depend upon the mixture, abundance, or deficiency of theſe humours, either in the whole body, or in any particular part; for the ſolids, although mentioned by Galen as the primary ſeat of diſeaſes, are paſſed over in ſo curſory a manner, that ſucceeding authors of the ſame ſect, either laid aſide the conſideration of them in that view, or deemed them to be formed from theſe four humours, and therefore unworthy a diſtinct place in the general principles of the ſcience.

A proper quantity and mixture of the humours was ſaid to produce the beſt habit of body; but as health was known to be enjoyed by perſons of very different conſtitutions, they ſaid the proportion of theſe humours might vary within certain limits, without abſolutely generating diſeaſe, and called this ſtate the health of mixture or temperament. From this it is apparent, that Galen might have enumerated many different temperaments, and indeed he mentions [*] eight beſides the moſt temperate, four of which are denominated from [†] the quality ſuppoſed to abound, and ſeem to take their origin from two of the elemental humours ſtamped with that quality exceeding their juſt proportion; thus the blood and yellow bile abounding, formed the hot temperament, the other qualities of each being reciprocally deſtroyed. Yet many ſucceeding authors making their obſervations on the different ſeaſons of the year, and ſtages of man's life, ſubſervient to their theory, have dropped theſe temperaments, and only taken notice of the other four, namely, the [‡] ſanguineous, pituitous, bilious, and melancholic, in which one or other of theſe humours is ſingly predominant [§].

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[*] See alſo Philagrius apud Ætium, tet. 3. ſ. 2. c. 7. Avicenna, Fernelius, Riverius, Sennertus, Etmuller.

[†] Hot, cold, dry, moiſt. Oribaſius Sym. lib. 5.

[‡] Hoffman, and moſt of the mechanic ſect.

[§] It is alſo to be noted that Galen, in commenting upon Hippocrates de Nat. Hum. ſays, that

When any of the four humours abounds beyond the limits of health, diſorders ariſe, different from * each other, both in appearance, and mode of treatment, according to the one which happens to prevail. The exceſs of the blood is called plethora, and of the other three † cacochymia, for their degeneracy, or an alteration of their qualities, which appears at firſt ſight to be implied in that term, ſeems not ſo conſonant to the original Galenic ſyſtem, and only to have been adopted afterwards, in order to ſolve various difficulties that aroſe in the firſt ſimple plan.

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when the latter mentions hot, cold, dry, and moiſt, he means not only theſe qualities, but alſo the elements which poſſeſs them in the higheſt degree. This obviouſly reduces the number of temperaments to four.

[*] Thus a tertian fever ariſes from an abundance of yellow bile, a quartan from black bile, a quotidian from pituita, and a continual from blood, &c. Philotheus in Aph. Hip. Philumenus in Ætio, tet. 3. ſer. 2. Ægineta, Ætius, Nonius, Palladius Syn. de Feb. Actuarius, Rhaſes, Avicenna, Avenzoar, Haly Abbas, Conſtantinus.

[†] De Meth. Med. & de Mult.

But that we may ſee this matter more clearly, it will be neceſſary to inveſtigate how theſe humours are ſuppoſed to be formed.

According to this ſyſtem, the food, when received into the ſtomach, is changed into blood, and afterwards into the other humours, by means of the natural heat of * the body exciting a proceſs ſimilar to the boiling of meat, which is therefore called concoction. Whilſt it ſucceeds properly, the body remains in good health, but whenever the firſt or any of the ſucceeding ‡ concoctions are imper-

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* The ſource of this heat they all lodged in the heart. Hippocrates de Dieta, & de Corde. Aretæus de Cur. Morb. acut. lib. 2, 7. Galenus de Uſu Part. & de Temp. lib. 2. Ariſtoteles de Part. An. lib. 3. cap. 4. & Hiſt. An. lib. 1. Columbus de Re Anat. lib. 15. Des Cartes de Form Fæt. & de Hom.

‡ Thus the chyle is concocted into blood in the liver, from which all the veins of the body are ſuppoſed to ariſe, Hippocrates, Aretæus, Oribaſius, Plato, Aſellius, Actuarius; or in the vena portarum, Theophilus de Urin.

imperfect, the food and humors remain crude or raw, which Galen calls the mother of all diſeaſes; as from the aliment not being proportionably changed into all the humors, a morbid abundance of ſome particular one is always produced.

Nature being found to have various reſources to rid herſelf of peccant cauſes, when even they cannot be immediately expelled through any of the ſecretory organs, it is ſuppoſed that they are ſeparated from the healthful humors, and prepared for evacuation by a procedure ſimilar, in ſome meaſure, to the firſt, which has therefore acquired the ſame name. As diſorders in the hot climates run a more regular courſe than in the colder ones, a certain length of time is thought neceſſary to concoct theſe morbid humors, according to their various degrees of crudity; in which nature can be aſſiſted, but ſeldom haſtened or retarded with impunity: from hence we find ſo many cautions againſt moving the humors while crude, in theſe authors.

As ſoon as nature has perfected this office of concoction, her next effort is to expel the offending matter, which, as it cannot be performed without ſome ſtruggle, the violent diſturbance attending it is called criſis, and the evacuation, and day on which it happens, critical; becauſe from theſe, the Phyſician forms a judgment of the good or bad event of the diſeaſe. It is from this, blended perhaps with the power and dignity which Pythagoras * has aſcribed to odd and ſeptenary numbers, that the whole account of critical days is taken; and when we conſider, that of the firſt twenty-one days, two thirds are ranked in the number, it is not difficult to perceive how eaſily their calculations are ſupported.

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* Celſus, lib. 3. cap. 4. Macrobius, lib. 1. cap. 6. Aulus Gellius, Noctes Att. lib. 3. cap. 10. The amazing power in medicine attributed by ſome to the number ſeven, is ſtrongly painted in an extract from Diocles Caryſthius, given by Macrobius in Somn. Scip.

Nothing can be more exactly fitted to the plan of concoction and criſis, than the ſyſtem of pharmacy which accompanies it. Many purgative medicines are ſuppoſed to be indued with the power of expelling out of the body, one humour in preference to the reſt. But as it is found that diſeaſes are often cured without purging, an addition is made to this part of the ſyſtem, without conſiderably hurting its ſimplicity, by claſſing diſeaſes * and medicines according as one or other of the four elementary qualities are thought to abound in them, and then it becomes the buſineſs of a phyſician to adapt the ſtrength of his medicines to the degree of the prevailing quality in the diſeaſe: thus, if it is hot in the higheſt degree, a medicine cold in the extreme is neceſſary; or if the complaint recedes ſomewhat from the ſummit, a medicine equally diſtant in degree is proper. The materia medica is alſo adapted to this part of the ſcheme with the great-

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* Alexander Trallianus, Alchindus, Abhenguefit, Albucaſis.

eſt accuracy, medicines being claſſed according to the qualities which they are ſuppoſed to poſſeſs, whether in the firſt, ſecond, third, or even fourth degree. So that the practice of phyſic ſeems reduced hereby to great certainty; one claſs of remedies aſſiſting to concoct and prepare the morbid humours for evacuation, whilſt another claſs is at hand to expel them, as ſoon as it can be done with convenience. Even where only a particular part of the body is affected, we are, according to this ſyſtem, ſupplied with medicines which have a peculiar attractive quality or power over that organ; hence the claſſes of cephalics, pectorals, &c. *

But how frail are the productions of human imagination! The ſixteenth century, which outſhines all preceding ages by the brighteſt productions of human genius, made ſuch inroads upon the ancient ſtate of the ſyſtematic practice, that its fall was more rapid than could be eaſily conceived.

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* Cordials, ſtomachics, hepatics, ſplenics, and nephritics.

The promiſes, and indeed the performance of the chymiſts in ſubduing diſorders, without waiting for concoction or critical days, correſponded ſo badly with the old ſyſtem, but ſo well with the true intereſt of mankind, that the acuteneſs of Van Helmont, and the diſcoveries of Harvey ſeem ſcarcely neceſſary to point out its numberleſs imperfections, and in reality had little power in forcing the world, which is more led by its feelings than reaſoning, to believe what it was ſo highly intereſted in finding true. When I ſay that it fell, I mean in the general eſteem and opinion; for the medical ſchools, pragmatically obſtinate to the laſt, perſiſted in worſhiping its ſhadow, and reviling Paracelſus, the chief of the chymical ſect, though we are indebted to him for many of our beſt remedies; and if his works were carefully examined they would be found to contain an account of many others which are not generally known, inſomuch that almoſt every quack medicine which has at any time gained reputation has been derived from him.

When I began this ſketch of Galen's ſyſtem, I intended to give an account of the principal arguments againſt it; but I am now led to ſuppoſe even that unneceſſary. Why indeed ſhould I waſte your time in proving that ſome of his humors, as the atrabilis and pituita, never exiſt but in morbid caſes, and are therefore improperly denominated elements of the healthy body; or even if they did exiſt, that the urine, ſaliva, mucus, and fat, might with as much propriety be dignified with the ſame title? Muſt I refute his aſſertion, that the other three humors are all perceivable in blood drawn from the vein of a perſon in health? Shall I quote Ballonius to prove, that blood taken from people in full health often appears vitiated, whilſt in diſorders it ſeems perfectly beautiful and pure *? Is it neceſſary I ſhould remark, that Galen himſelf witneſſes his † having ſeen many pituitous

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* Epid. l. 1. See alſo Stubbe Phlebot.

† De Temp. l. 2.

men, who daily threw up a large quantity of yellow bile; and that extreme old age, though of the melancholic habit, is chiefly infeſted with pituita? Which ſhew, that the redundance of the humors does not always agree with the ſuppoſed temperament. Is it requiſite to make it appear, that, as he ſuppoſed, three different kinds of pituita, four of black, and * ſix of yellow bile, that he therefore ſhould have diſtinguiſhed as many different conſtitutions, and that he contradicts himſelf when treating of particular temperaments? Thus, in his book on the black bile, he ſays that it is chiefly generated in dry hot bodies, although in other places he deſcribes it as produced in ſuch only as are † cold: and as to the effects of yellow bile on the mental faculties, he advances, in his book on human nature, that ingenuity and prudence proceed from it; but, in his ſecond book on temperaments, he defines thoſe who are bilious, to be bold, paſſionate, and raſh.

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* Finitiones Medicæ.

† De Nat. Hum. & Finit. Med.

Will it be required to diſprove his whole ſyſtem of elective purges, at leaſt in the view which he took of them? For the power which ſome remedies poſſeſs of increaſing a particular ſecretion, as quickſilver, ſquills, Dover's powder, tobacco, &c. is very different from that attractive one to which he has recourſe. Should the numberleſs exceptions to his rule of curing diſeaſes, by adminiſtering thoſe remedies which poſſeſs a contrary elemental quality be ſhewn? No! I believe it is unneceſſary to deſcend minutely into an inveſtigation of theſe and many other objections to his ſyſtem, ſince it is fallen, never to riſe again. Melancholy to think, that parts fit to govern the medical world for centuries after his death, to render the moſt abſurd impoſſibilities probable, and give improbability the air of truth, ſo as to force us almoſt to love his errors, ſhould all be devoted to frame a ſyſtem, which, the moment it fell to the ground, rendered his many excellent obſervations almoſt uſeleſs and forgotten! If he with his thouſand commentators, and myriads of followers, could not eſtabliſh theory on a permanent foundation, who can now hope for ſucceſs!

It is much to be wiſhed that all the faults of Galen had died with his ſyſtem; that none of his, or even of Hippocrates's ideas of making a phyſician a mere nurſe in many diſeaſes, ſtill prevailed, and that the miſtaken rule of aſſiſting nature did in no inſtance clog our preſent practice, and hinder us from attempting any thing deciſive, at a time in the diſeaſe when acting vigorouſly can alone afford a proſpect of ſaving the patient. I am convinced that the opinion of a phyſician being an aſſiſtant to nature, when ill applied, has done infinite miſchief. Thus in acute diſorders, many practitioners ſuffer the patient and the diſeaſe to ſtruggle until ſome evacuation happens, which they moſtly encourage, under the notion of its being ſalutary, although, in fact, it is frequently otherwiſe. The only occaſion on which that maxim can be ever ſafely applied, is when we ſee the diſorder taking a turn we have always known ſalutary; we are to aſſiſt therein if poſſible, or at leaſt not to diſturb its courſe; but in other caſes, to ſuffer it to go on in a manner we have formerly found unſucceſsful, even in one of twenty caſes, is the baſeſt deſertion of all the principles of humanity. Admitting we are uncertain, as to the method of treating it, ſtill the evacuation ſhould be ſtopped, unleſs we have formerly ſeen fatal conſequences attending that practice, as, in every dubious caſe, the ſtrength of the patient is principally to be regarded.

The chymiſts who firſt overthrew the doctrines of Galen, formed a ſyſtem as exceptionable; but having opened the eyes of mankind, and the firſt and greateſt of them not being very conſiſtent in their ſcheme, it had not ſuch pernicious effects in preventing future improvement. It becomes indeed a matter of greater difficulty to give an account of the remaining theories, no one writer having kept within the bounds of a ſimple ſyſtem, but mixed a variety together in ſuch a manner, as to make a compoſition not unlike Horace's,

"Deſinens in piſcem mulier formoſa ſupernè:"

I ſhall therefore mention thoſe opinions only of each author, which coincide with the ſyſtem he chiefly embraces, leaving thoſe that remain to be deſcribed under the ſcheme to which they properly belong.

The chymical philoſophers having analyſed the human body, thought they could extract from it a number of ſubſtances, as acids, alcaline ſalts, &c. *

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* Ardent ſpirits, ſulphur, oil, water, earth, and even air, mercury, fire, iron, nitre, ſea ſalt, ſal. armoniac, vitriol, tartar, verdegris, and ſal gem. Schinz de Calce. Henkelius Flor. Saturni. Menghinus in Com. Acad. Bonon. tom. 2. p. 2. Galeacius, ibidem. Hale's Vegetable Staticks. Philoſoph. Tranſact. N° 454. Deſaguliers's Courſe of Experim. Philoſ. From the particles of iron in the body, which Menghinus computes to be one grain in ten pounds of the bones, Haller deduces the following curious theory, "facile intelligitur hujus metalli acceſſione firmitatem fibræ animali addi." Elem. Phyſ. lib. 1. ſect. 1. See alſo, Geoffroy Mem. de

Having likewiſe found that many of theſe on mixture raiſe a conſiderable ebullition or effervefcence, and form a compound differing in its qualities from any of the ſimple ingredients; having alſo ſeen the great power of fermentation in totally changing many bodies; they had recourſe to theſe principles with an avidity which ever accompanies novelty.

According to them, the food is no ſooner taken into the mouth to be maſticated, than it encounters a * ferment or yeaſt in the ſaliva; and being afterwards received into the ſtomach, the natural warmth, and the remains of former meals act in a † ſimilar manner; and

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l'Acad. Roy. des Scien. 1732. Lanciſius Diſſ. 4. Gulielminus de Sang. Nat. & Conſt. Verheyen. l. 2. Pecklin. Obſer. Boyle, Apparat. & Append. Hiſt. Sang. Grew, Coſmolog. Hill, Mat. Med. Tachenius. Van Helmont. Vieuſſens Diſſ. Hamberg in Mem. Pariſ. 1712. Rhades de Fer. Sang. Badia Opuſ. Sci. Severinus, Scheuneman, Sala, Ruland, Petræus, Quercetanus, Beguinus.

* Willis de Ferment, c. 5.

† Verheyen, t. 2.

laſtly, being tranſmitted into the duodenum, where the alcaline bile and ſubacid pancreatic juice raiſe a gentle efferveſcence, it is changed by means of theſe firſt fermentations * into a whitiſh liquor called chyle, which is ſeparated from the impurities of the food by the meſeraic † veins, as Van Helmont and ſome of that ſect ſuppoſe, where it undergoes another fermentation on being mixed with the blood. But Sylvius de le Boe and others acquainted with the ‡ lacteals, and their junction with the ſubclavian vein by means of the thoracic duct, carry the chyle to the right ventricle of the heart, where the bile mixing with a ſubacid lymph, raiſes

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* Van Helmont, Paſcal, Bayle, Viridet, Floyer, Sylvius de le Boe, Geuder, Vieuſſens, Peyer, Reaumur, Queſnay.

† This was the method of abſorption, embraced by Hippocrates, Ariſtotle de Part. An. Galen de Uſu Par. Bils, Columbus, Harvey de Gen. An. Falkenburgh, Tachenius, Rogers, &c.

‡ Scaramucci Dia. Paramens, 1689, Sylvius Diſſert. 8. n. 63. & 10. n. 58. Willis de Ferment. c. 5.

an effervescence*, by which it is obliged, foaming as it were, to leap out of that cavity, and from hence, and a ſimilar exploſion in its other † receptacles, the beating of that organ, and the motion of the blood is accounted for. The fourth digeſtion or fermentation is placed in the right ventricle of the heart and in the lungs, where the blood is ſuppoſed to be cheriſhed and cooled ‡ by the inſpired air. Another fermentation, or that whereby the animal ſpirits are produced, is placed by § Van Helmont, in the left ventricle of the heart, by means of a peculiar ferment inhabiting that organ; but Willis, Sylvius, and others place the formation of theſe ſpirits in the brain *, by diſtillation, as in an alembic, and ſay they differ very little from ſpirit of wine, which is itſelf a product of fermentation.

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* It may perhaps be worthy remarking here, that the lacteals, though eſteemed a recent diſcovery, were known to Herophilus, that prince of anatomiſts, to contradict whom Fallopius thinks is equal to contradicting the goſpel. See Galen de Uſu Part. lib. 4. cap. 19.

† Willis de Ferm.

‡ Reaumur Mem. 1734. Ariſtoteles de Reſp. Des Cartes de Hom. & Form. Fæt. Helvetius Mem. Acad. 1718. Le Cat ſur le Mouv. de Muſcl. Loſſecke Mat. Med. Shebbeare, Moſca, Robinſon, Sauvages, Hamberger Phyſ.

§ Blas Hum. & aura Vit.

Puſhing this doctrine ſtill farther, the remaining organs of the body are all thought to perform their offices by a mode of fermentation or effervescence peculiar † to each of them. Thus lymph is generated in the conglobate glands, from an acid and volatile ſpirit; the pancreatic juice from an acid and oil; and the ſaliva from an acid oil and volatile ſpirit. Animal heat is produced by fermentation, or by the acid chyle uniting with the ſalts, or the balſam of the blood, in like manner as when a concentrated acid is mixed with a diſtilled oil ‡. The muſcles are

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* Willis Cerebri Anat. cap. 9. Sylvius, l. 1. c. 12.

† Willis de Ferment. c. 5. Van Helmont. Paſcal Nouv. de Couv.

‡ Henſhaw Acrochalinoſ. Paſchal Traité de Fermens. Van Helmont in Sole Tabern. Sacchus de Feb.

thought to perform their office by an efferveſcence [*], or exploſion, between the nervous ſpirits, and particles of a different kind ſupplied by the blood; the former burſting into their fibres at the command of the brain. Even the ſpleen is ſuppoſed by ſome to prepare an acid [†] ferment; generation is made to depend upon a fermentation both in the teſticles and uterus; and the ſoul is determined, to be a kind of flame or æther, which beginning in the male ſemen, and cheriſhed by the maternal heat, fixes its ſeat afterwards in the blood, during the life of the animal. From the watery part abounding in the blood, the pituitous temperament ariſes, the choleric from the urinous ſalts, the melan-

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Cont. Coward de Ferm. Volat. Malpighius de Polyp. Sang. Medical Eſſays, t. 5. p. 2. Targirus. Homberg. in Mem. Pariſ. 1709. Vieuſſens Traité des Liq.

[*] Vieuſſens Neurograph. & Traité de Cœur. Fracaſſiras de Febre. Willis de Morb. Convulſ. cap. 1.

[†] Tachenius Clavis, c. 8. Van Helmont, Jus duum Viratus. Willis de Ferm.

cholic from the earthy parts, and the ſanguineous from ſulphur *.

From this view of their phyſiology it will appear of what importance it muſt be that the chymical elements of the body ſhould be in due proportion, ſince otherwiſe, the different ebullitions and fermentations cannot proceed regularly, nor the body be nouriſhed and preſerved in health. As to diſorders, Willis, ſaying that they all conſiſt in too ſmall or too great a fermentation, places the principal duty of a phyſician in † modulating that proceſs. He blames an abounding ſulphur and ſpirits in fevers; the periods and continuation of the latter depending on the quantity of theſe matters mixed with the blood. Sylvius accuſes an acrid volatile ſalt in the ‡ plague; but Tachenius §,

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* Queſnay Œcon. Anim. t. 3. Stubbe Phlebot. Willis de Fermentatione, cap. 2. Journ. de Trev. 1709. Burgraave de Acre Aq. & L.

† De Ferm. c. 5.

‡ Pract. Med. App. Tract. 2.

§ Tachenius makes an acid even the vital principle in all things. Hip. Chym. c. 15.

Bontekoe, Overcamp, &c. make an acid the cauſe of all diſeaſes: thus in the ſkin, it produces eruptions; in the joints, gout; in the inteſtines, cholic; and in the urinary paſſages, ſtrangury. It muſt be remembered alſo, that chymical authors make mention of other proceſſes taking place in the body, as coagulation, ſublimation, ſolution, &c. but theſe being only viewed in the light of aſſiſtants to the former, need ſcarcely be particularized.

Tachenius was under ſome difficulties as to the materia medica; for having made an acid the cauſe of all diſorders, it is plain that any alkali ſhould be the cure: this objection he endeavoured to obviate, by ſaying that the acid was endued with a degree of prudence, which prevented its joining with any alkali, except that with which it perfectly * agreed. Thus iron was the neceſſary alkali for hypochondriac people. Such doctrines do not

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* Clavis, c. 9.

deſerve a ſerious refutation. But thoſe chymiſts, who aſcribed the foundation of diſorders, to any of their firſt principles being redundant or deficient, could with the greateſt eaſe adapt their theory to the known practice, by a ſuitable arrangement of medicines into acid and antacid *, &c. We find likewiſe amazing induſtry uſed by them, for the perfecting their ſyſtem in analyzing the different humours, both of the healthy and unſound body †, and the ſeveral ſubſtances uſed in diet and medicine ; and if ever there could be a rational hope of reducing theory to an abſolute certainty, it was then. But after all the trials of the moſt learned and ingenious men, it was found that the ſcheme could

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* Alcaline and antalcaline, ſeptic and antiſeptic, oily, diluent, and ſpirituous.

† Dodartus Proj. pour ſervir a l'Hiſt. des Plantes. Vieuſſens Traité des Liqueurs. Colbatch Doctrine of Acids aſſerted. Langriſh Modern Practice. Rhades de Ferro Sang. Sutton. Pinelli de Podag. Lemery. Geoffroi. Burgraave de Aera. De Heyde Obſ. Senac Traité du Cœur. Barchuſen Achr. Comment. Petropolit. v. 14.

not be ſupported by theſe experiments, and the only benefit ſuch a waſte of time produced to the world, was to ſhew that another courſe muſt be taken, the ſubject having been too much exhauſted to leave any hopes of ſucceſs by perſiſting in the ſame track.

The hypotheſis came, therefore, to reſt upon its firſt conjectural foundation, which was weak in many reſpects: for though a fermentation was, with much plauſibility, ſuppoſed by them to take place in the ſtomach, ſimilar to that which enſues upon a mixture of vegetable and animal ſubſtances, in any veſſel kept in a due degree of heat; and though this opinion has been eagerly laid hold of by ſome late experimenters, who ought to have known the difference between an animal ſtomach, and a bottle, yet I am convinced, when the doctrine is brought to a ſtrict ſcrutiny, it will be found that the juices of that organ poſſeſs powers very diſſimilar * to any

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* See a paper on the Digeſtion of the Stomach, by Mr. John Hunter, in the Phil. Tranſ.

thing which we know or can form out of the body. For proof of this, we need ſcarcely go farther, than its power of coagulating milk, and diſſolving even bones. We alſo find, in voracious fiſhes, where digeſtion is very ſtrong, though heat, the principal promoter of fermentation, is wanting; that the part of any animal received into the ſtomach is * completely diſſolved, whilſt that which remains in the œſophagus is untouched.

If we proſecute this theory ſtill farther, to the different fermentations and ebullitions in the blood and ſpirits, we ſhall find it deſtitute of the leaſt ſhadow of proof. So far from meeting with any aceſcency in the blood, to which every circumſtance known of its nature is oppoſite, we cannot even perceive it in the ſpleen and pancrèas, organs appropriated

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* The ſame is true of the eagle, viper, owl, weaſel, &c. See Guider de Ferm. Valiſner, t. 3. Viridet du bon Chyle. Leopold Œcon. cur. Phil. Tranſ. n. 162. Tyſon, Charas de Vip.

by the chymiſts to the ſole[*] purpoſe of ſecreting it, nor does there ſeem to be any better reaſon to ſuppoſe an alcali in the bile[†]. Van Helmont may be alſo quoted to prove, that in analyzing blood drawn from two hundred perſons, as unlike in their conſtitutions and ſtate of health as poſſible, no material variety[‡] appeared; which ſhews how little foundation there is for the opinion of diſorders ariſing from an undue proportion of the chymical principles in the body. The exploſion ſuppoſed in the heart and muſcles is ſo truly ridiculous, as not to merit examination; I ſhall therefore leave this ſect with obſerving, that fewer traces of it are to be met with among ancient writings, than of any other. It is true, we find Praxagoras * making mention of eleven humours in the body, amongſt which are ſour, nitrous, and ſalt; and Pliſtonicus ſaying, that digeſtion is performed in the ſtomach by putrefaction; yet ſtill its claim to originality muſt be allowed the only well founded one of all modern theory.

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[*] Perrault, Valiſneri Conſil. Creſſinzo, Craanen, Tiling, Floyer Præt. Nat. State of the Hum. Sylvius de le Boe. Mayow, Malpighi, Bontekoe, Coward de Ferm. Schuyl, De Graaf, Diemerbroeck, Hoboken Phyſ. Haartman Anthrop. Harder Prod. Phyſ. Duccini de Humor. Duncan Chym. Nat. Spec. Dippelius Vit. An. Morb. & Med.

See, on the contrary, Drelincourt, Boerhaave, Brunner, Pechlin, Hoffman, Bohn, Caſſius, Bittus, Neurmann, Vater, Muraltus, Cronier.

[†] Boerhaave Inſtit. Med. de Circul. Sang. Verheyen, Hartman, Gaubius, Com. Nor. Barchuſen, Taconi.

[‡] See alſo de Hyde Obſ. 87. Haller Elem. Phyſ. lib. 5. ſect. 4. and all the authors already mentioned who have analyzed the blood; the vaſt difference between them being the beſt refutation of the ſcheme.

Notwithſtanding its many abſurdities, I wiſh, that inſtead of ridiculing, we would endeavour to underſtand the quaint terms under which its founders thought it neceſſary to veil their knowledge, leſt

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* Or Protagoras; ſee Galen Introd. cap. 9. & de Nat. Sac. lib. 2. cap. 9. & Rufus Epheſius, lib. 1. c. 36. Celſus Præf.

it ſhould be profaned by the vulgar or impious, whom they ſuppoſed totally incapable of attaining wiſdom. And ſurely the zealous piety, and ſincere benevolence conſpicuous throughout all their works, ſhould raiſe other emotions in us than deriſion. Indeed I know not what authority, as to facts, ought to have greater weight than that of men who led the moſt retired, chaſte, and painful life to promote the health of their fellow-creatures, and, if poſſible, to inſure immortality to the good; for ſuch were the ſuppoſed virtues of the philoſopher's ſtone, that ignis fatuus of the ſect.

Having begun with the conſideration of the fluids, I ſhall go on to take notice of ſuch theories as place the cauſe of health and diſeaſes in their ſuppoſed mechanical qualities.

Hydraulical writers, by ſhewing a variety of curious particulars as to the weight and preſſure of fluids, and their motion in tubes, and Harvey, by demonſtrating the circulation of the blood, cauſed theory, which was then languiſhing, to renew its courſe with freſh vigour. Phyſicians, particularly thoſe of the mechanic ſect, attribute many alterations of the ſyſtem, to the particles of the fluids varying in their ſize, weight, ſhape, degree of coheſion, and ſtate of their pores. By theſe we are amuſed with accounts of the angular parts of the fluids, or ſpiculæ tearing the ſolids; their lentor becomes alſo a favourite theme, as an obſtruction in the canals of the body, which they deem like an hydraulic machine, is not difficult to ſuppoſe, and can eaſily be applied, by viſionary ſchemers, to account for moſt appearances in diſeaſes.

Lewenhoeck alſo, by ſhewing the globular figure of the red particles of the blood, and feigning the ſubdiviſion of them into ſix ſerous * globules, and each of

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* Exp. & Cont. Epiſt. 56. Phil. Tranſ. n. 145. & n. 117. See alſo Malpighius Poſtum. Tabor. Exerc. Bergen Hæmat. Hales Hæm. Boerhaave Inſt. Med. n. 216. Bonhomme Cephalat. Baker's Microſcope made eaſy. Noguez Anat. du Corp.

theſe again into ſix others, gave the patrons of this ſyſtem an opportunity of diſplaying it ſtill farther. Laying hold therefore of ſuch an imaginary ſcheme, and adapting to it a ſuppoſition of a decreaſing ſeries of veſſels * juſt capable at their extremities to ſuffer the globules of their appropriated fluids to paſs, a new cauſe of obſtruction is invented. Thus if any of the ſmaller orders of veſſels ſhould happen to be ſo far dilated at their orifices, as to permit the entrance of globules larger than thoſe for which they were originally deſigned, on paſſing farther onward, theſe muſt be ſtopt, and ſo form an obſtruction by error loci, as it is called. Fortunately, for this reaſoning, an inflammation of the

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Hum. Villiers Phyſ. Niefeld de Secret. Kinneir of the Nerves.

[*] Boerhaave de Uſu Ratiocinii Mechanici, id. Aph. de Cognoſ. n. 379, 380. Id. Inſtit. Med. n. 245. Nichols Comp. Anat. Schreiber Elem. Med. Phyſ. Math. l. 2. c. 2. Queſnay de le Suppur. Valiſnerius, t. 2. Walther Diſſert. de Inflam. n. 11. Schwenke Hæmatolog. Hamberger Theoria Inflam. Hale Hæmaſtatics.

eye ſeems to give a notable proof of it, as its veſſels are then ſeen to contain red blood, which are ſuppoſed, only on account of their ſize, not capable of tranſmitting it at other times.

The attractive faculty taken notice of by Hippocrates, Galen, Empedocles, and the ancients, is likewiſe accommodated by many of this * ſect, to account for the many ſecretions; thus bile is ſuppoſed to attract only bilious particles from the blood, and to repel all others.

It is obviouſly very difficult to detach the liquids in this mechanical view from the ſolids, and as I am haſtening to the opinions entertained of theſe laſt, by the ſame claſs of writers, I ſhall not dwell long upon ſuch points of this ſcheme as may be deemed connected with them. Suffice it to ſay, that any diviſion of medicines into incraſſants, agglutinants, de-

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* Plutarch. Sym. Galen. de Fac. Nat. Leibnitz apud Michaelottum, Winſlow Mem. Par. 1711. Regis Cours de Phil. Barbaut Splanch. Kratzenſtein de Diabete, Mazino Med. Mech.

mulcents, attenuants, deobſtruents; in ſhort, any drawn from the ſuppoſition of ſheathing or obtunding the ſharp points of the fluids, or breaking their tenacity, muſt be liable to great fallacy, the principles upon which they depend having been only aſſerted, but never proved. What indeed can be more ridiculous, than to hear authors gravely deſcanting upon the powers of mercury and antimony, to break down the blood * by their weight, when it is well known how little of the former is requiſite to raiſe a ſalivation, and that a quantity of the latter too ſmall to be perceivable on the niceſt balance, will ſtrongly affect not only one, but a great number of men. Lewenhoeck's whole ſyſtem of different ſized globules in the blood, which originated perhaps from finding that ſix equal ſpheres, when laid together, formed a more compact figure than any other number, is now found to be

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* Miſcel. Cur. t. 3. Boerhaave de Vir. Med. Wainwright of the Air. Haller. Elem. Phyſ. lib. 6. ſect. 1. Cheyne.

be erroneous *, the beſt microſcopes diſcovering only one ſet of globules, which inſtead of being perfect ſpheres, are ſuppoſed by ſome to be flat on the † ſides, like pieces of coin. The idea of inflammation from the globules of blood entering into veſſels two ſmall to al low of their paſſage ‡, or obſtruction ariſing from whatever cauſe § is ſtrongly refuted by ſeveral eminent writers.

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* See Brendel Programmate. Lanciſius. Senac Traité du Cœur. t. 2. Puiati de Morb. Neronian. Ellerus in Mem. Berl. t. 7. Haller Elem. Phyſ. lib. 5. ſect. 2.

† Lewenhoeck in Frigidis Animal. Muyſs. de Fibr. Muſc. Miſtichelli de Apoplex. Mihles Phil. Tranſ. n. 460. Senac Eſſais de Phyſique, t. 2. & Traité du Cœur, t. 2.

‡ See Power's Microſcopical Experiments. Beſſe Lettre a Mon. Helvetius. Senac Traité du Cœur, t. 2. Queſnay Traité de la Saignée & de la Suppuration. Littre ſur le nouveau Syſteme de la Voix. Haller Elem. Phyſ. lib. 2. ſect. 1. Premier Mem. ſur le Mouv. de Sang. & Opuſc. Path. id Prælect. ad Boerh. t. 2. n. 245. Bergen de Infl.

§ Sauvages Theor. Pulſ. Id. Pathol. Method. Ferrein apud Salmon de Utero. Haller Elem. Phyſ.

The ſolids had been early the ſubject of medical diſquiſition. We find Hippocrates taking notice of them, and the methodic * ſect drew their whole account of health and diſeaſes from them. The ſyſtem of this ſect, with ſuch alterations as a more extenſive knowledge of the animal œconomy naturally pointed out, was adopted by the mechanic phyſicians, amongſt whom Borelli, Baglivi, Bellini and Pitcairn, juſtly merit the firſt place.

Theſe conſidering the ſolids like tenſe chords, thought they performed their office by elaſticity. The difficulty, how-

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t. 2. ſect. 1. id. 2^{d} Mem. ſur les Mouv. du Sang. id. Opuſc. Path. Remus Exper. ad Cir. Sanguin.

* Themiſon, Proculus, Eudemes, Valens, Theſſalus, Menemachus, Soranus, Cœlius Aurelianus, Moſchion, Theodorus, Priſcianus, Gariopontus, and Proſper Alpinus. See Celſus Præf. Cœlius Aurelianus de Morb. Acut. & Chron. Galen, Ætius, Voſſius de Hiſt. Gr. & de Phil. Suidas, Fabricius Biblioth. & Cent. Plag. Photius Biblioth. Garyopontus. Proſper Alpinus de Med. Meth. Plinius Hiſt. Nat. Dioſcorides, Moſchion de Part. & de Morb. Fæm. Oribaſius.

ever, of explaining the beginning of all motions in the body, particularly the voluntary ones, obliged ſome of theſe authors to approach the principles of the next ſect, of which I propoſe to give an account, and derive all motions from a living principle; yet they ſeem ever willing to forget this, as much as in their power, and recur to the firſt ſimplicity of their ſcheme. Thus Baglivi, wiſhing to go as far back as poſſible with mechanical principles, makes all ſenſations, motions *, and alſo health and diſeaſes depend upon the tone and elaſticity of the dura and pia mater. All the membranes and contractile parts of the body being derived, as he ſuppoſes, from theſe membranes, it is eaſy to ſee that having once eſtabliſhed a regular motion in them, a reciprocal oſcillation might readily be transferred to the reſt of the body, as from one end to an-

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* See alſo Miſtichellius de Apoplexia. Pacchioni. Nardi Noct. Gen. Nugent. de Hydrophob. Le Cat, Helmont de Lithiaſi. Croone m. Mot. Andry Eclairc. ſur le Liv. des Verſ.

other of a tenſe chord, there to perform its various offices and ſecretions *. This motion of the membranes ſurrounding the brain, is often, he ſays, perceived by the ſick, in many diſorders of the head. He thinks theſe membranes of ſo much conſequence, that no one can exiſt without them, although life, as he imagines, might continue without the brains †. Some of this ſect, however, allow the brain to be of a little conſequence in the ſyſtem, deriving from thence a very ‡ ſubtile fluid,

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* This opinion of the nerves acting like tenſe chords, is alſo embraced by Faber de Homine. Bibloo Exerc. Liſter Ex. Cheyne. Hartley of Man. Mathei, de Nervis. Martinez, Brinius, Vandermonde, Pacchionius, Hartley, &c. See on the contrary, Guettard, Langriſh, Parſons of Muſc. Mot. Monro on the Nerves, Cheſelden Anat. Pagani, Bonioni, Lieutaud, Cœſalpinus, &c.

† De Fib. Mot. c. 5.

‡ Neuterus Phyſ. Porterfield, Werlhof de Feb. Burgraave, Apperly Obſ. Du Bois de Fluid. Nerv. Fleming, Hill on the Nerves, Heiſter, Lieutaud, Borrich, Mead, Sauvages. It is amazing how many conjectures have been formed concerning the properties of this fluid, whoſe exiſtence was never yet

fluid, regulated in its motions by the ſoul. This fluid being propelled at any time in a larger quantity than ordinary into the ſuppoſed veſicular cavities of the muſcular fibres, inflates them, and thereby ſhortening their length, produces what is called muſcular contraction. The blood veſſels being ſupplied with muſcular coats, are ſaid by ſome to contract from the ſame cauſe *; others are of opinion that the

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proved: thus it has been accounted ſpirituous, aerial, watery, acid, glutinous, electrical, magnetic, nitrous, oily, ſulphureous, fiery, æthereal, &c. See Werlhof, Lieutaud, Gliſſon, Charlton, Malpighi, Bellini, Berger, Hayman, Laiter, Brunner, Quincy, Gorter, Baron, Paſcal, Mayow, Barbieri, Coward, Struve, Oribaſius, Vater, Santorinus, Willis, Murault, Rivinus, Meyſonnier, Gautier, Boiſſier, Laghi, Hauſſen, Hais.

* Stæhelin de Pulſu. Thomſon Diſſ. Med. Andry Tem. de Med. Ludwig Phyſiol. De Gorter Exercit. 5. Senac, t. 2. Michelottus, Cowper, Phil. Tranſ. n. 299. Cheyne Phil. Princ. of Relig. De Gorter de Mot. Vit. Queſnay de la Saig. Bikker de Nat. Hum. Bos de Viv. Corp. Hum. Solid. Zimmerman de Irritab. De Heyde Obſ. Lorry Journ. de Med. 1757.

operation of theſe veſſels is owing to their [*] elaſtic coats re-acting upon the blood, forced into them by the alternate contractions of the heart.

Having thus found ſome cauſes by which the elaſtic ſolids are put into motion, let us now ſee how that motion is adapted by moſt of the ſect to explain the animal ſyſtem. The food, when received into the ſtomach, is there ſuppoſed to be ground, [†] as in a mill: and here indeed the ſtrong muſcular ſtomachs of ſome [‡] granivorous birds are of excellent uſe to the theoriſt, but though deprived of this aid in man, a verſatile genius cannot be long without a re-

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[*] Vieuſſens Nov. Vaſ. Syſt. Schelhammer de Pulſu. Pechlin de Purgantib. Schreiber Almag. Procope Anat. de la Trit. Morland, Mem. Paris, 1736.

[†] Eraſiſtratus ſuppoſed the food to be ground in the ſtomach. See Celſus Præfat.

[‡] Stalpaart Obſ. cent. 2. Duverney, Reaumur, Teichmeyer Anthrop. Pariſini, Warren, Phil. Tr. n. 394. Mem. Acad. Par. 1752, Cimentini, Rhedi, Borelli, &c.

reſource; the muſcles of the abdomen * and diaphragm are therefore called in to aſſiſt, and being weighed, and their weight compared with that of the flexor of the thumb, whoſe power can be aſcertained with great exactneſs; they, together with the ſtomach, are found by Borelli, the prince of this ſect, to act upon the food with a force equal to the weight of two hundred and ſixty-one thouſand one hundred and eighty-ſix pounds †. I am fearful that thoſe who have not read this author, will ſcarcely believe me to be ſerious, not conſidering how eaſy it is for a modern theoriſt to place the power of twenty mill-ſtones in a man's ſtomach. The food on paſſing into the inteſtines, is farther elaborated by an equal force, and the chyle taken from it, being carried to the right auricle and ventricle of the heart, by their powerful action, com-

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* See alſo Pecquet Diſſert. Anat. Haguenot, Mem. Par. 1713, Bathurſt Præl.

† 12951 by Pitcairn, 117088 by Fracaſſinus de Hypo. 260000 by Wainwright.

puted with that of the left auricle and ventricle at one hundred and eighty thouſand pounds, is again comminuted, and thrown into the conical veſſels of the lungs, where being ſtrongly acted upon by their ſides, by the propelling force of the heart, and by the motion of the lungs themſelves in reſpiration, it is at * length formed into blood, by a ſimilar attrition, to that whereby it was firſt changed into chyle.

It is this conſtant attrition in the veſſels which produces animal † heat, in the ſame manner as it may be generated by the friction of two hard ſubſtances together; and it being evident that the ſolids muſt be abraded by it, they are ſuppoſed to be repaired by particles of the fluids preſſed ſtrongly into the ſpaces thereby left vacant. From the finer parts of the

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* Bazzicaluve Theor. Tumor.

† Boerhaave Inſt. Med. Phyſ. des Corps Anim. De Gorter de Perſpir. Martin. de Sim. An. Lorry, t. 2. Schwenke. Langriſh Med. Pract. Douglas, Eſſay on the Gen. of Heat, &c.

blood, farther elaborated, and from the purer particles of the air received * into the lungs, a very ſubtile fluid is ſecreted in the glandular cortical part † of the brain, which paſſing into the nerves, and acting mechanically, as has been already mentioned, upon the different organs, produces all the effects known to depend upon theſe inſtruments of ſenſation and motion: the known ſympathy of particular parts being derived from thoſe connections which are perceived between the nerves in their progreſs ‡.

As to the ſecretions, the liquor ſeparated by each is thought to be diſſimilar only in

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* Bellini de Ferm. Swammerdam de Reſp. Berkley Siris. Bernoulli de Reſpirat. Bayle Probl. 100. Malpighi Poſt. Spranger. Georgi Prop. 36, 37. huc quoque pertinent. Ariſtotelis Hiſt. An. lib. 1. c. 16. Hippocrates de Dieta. Aretæus Acut. lib. 2. c. 3. Rufus Epheſius, lib. 2.

† Malpighius de Cereb. Cort. Blanchard Anat. Reform. Liſter Exercit. Anat. Ridley. Mangetus Bib. Anat. Præl. & Iſagog. Anat.

‡ Willis Nerv. Deſ. & Uſ. & de Mot. Muſc. Zin. de Ocul.

proportion as the organ is more diſtant from the heart, its veſſels larger or ſmaller, aſcending, deſcending, horizontal, or inclined, and the net-work for ſtraining the liquor, more or leſs open in its texture *. Many things are likewiſe ſuppoſed to depend upon the diminution in ſize of the blood veſſels proceeding to † all the ſeveral parts, they being ſaid to reſemble a cone, the baſis of which is ‡ placed in the heart. Perſiſting in this plan, they

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* Payen Diſſ. de Hum. Secern. De Gorter de Secret. Lieutaud Phyſ. Papa de Humor. Boerhaave Inſt. Med. Hamberger de Secret. Mem. de Berlin 1751. Wainwright de Secret. Niefeld de Secret. Keil. de Secret. Phil. Tranſ. n. 280. Cole de Secret. Morgan Princip. Ruyſchius frequenter. Alſo Pitcairn, Lanciſius, Morland, Michelottus, Borelli, Cockburne, Verheyen, Cheyne, Wintringham, Lamure, Des Cartes, Craanen de Homine, Gulielminus de Sanguine, Georgi de Homine, Vogli Fluid. Nerv. Hiſt.

† Guederus de Fermentis,

‡ Boerhaave Inſt. Med. 212. Hoffman Phyſ. Bazzicaluve Theor. Tumor. Charleton's Lectures. Schelhammer de Pulſu. Bianchi Diſſ. Epiſt. de Imped. Circ. Sang.

diſcover their levers, catapultas, and pullies in the human frame; and the world being, for this century paſt, extravagantly fond of applying geometry and abſtract mathematics to every ſcience, however unconnected with them, we need not be ſurpriſed to find this ſect ſo very numerous, and ſome of its ſupporters ſo very abſurd as even to explain the animal œconomy by the aid of algebra.

The fibres being capable, according to them, of ſtrength, weakneſs, rigidity and laxity; health is made to depend upon a due proportion of theſe qualities, any of which predominating above that degree allowable for the difference of conſtitution, produces diſeaſe. The fibres are ſaid to be tender, but very tenſe in the bilious temperament; denſe and hard in the melancholic; lax in the phlegmatic; and lax and ſpongy in the ſanguineous.

To adapt the materia medica to this ſyſtem, it is divided into aſtringents, relaxants, ſtrengtheners and weakeners, amongſt which laſt all evacuants muſt be ar-

arranged; as it is evident that a fulneſs of the veſſels muſt greatly contribute to their tone, their fibres not being otherwiſe properly ſupported.

If other ſyſtems had been deficient in the minuteneſs of their calculations, this would have made ample amends, by its mathematical nicety, inaſmuch as we often find the authors of it, ſpeaking of the proportion of the ſtrength * and diameter of the veſſels, and even the ſquares of the conſtitutions, and computing to a nicety the ratio of the velocity † and momentum of the blood, for various purpoſes in the theory of medicine.

The ſimilarity of this ſect with the ancient methodic one has been already mentioned; perhaps the following opinions of Aſclepiades may be found to contain much of the foregoing theory.

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* Wintringham's Experimental Enquiry. Morland on the Force of the Heart. Martin de Simil. Animal. Sauvages Phyſiol. Hales Hæmaſt.

† Keil de Velocitate Sanguinis, Cockburne in Phil. Tranſ. n. 303. Balguy in Med. Eſſ. v. 4. art. 5.

* Diſorders are produced, according to him, when the pores do not allow the matter which ſhould move through them, to paſs freely, whether this ariſes from the too great ſize, or irregular figure of the moving matter, the increaſed quickneſs or ſlowneſs of its motion, the bad figure or diſpoſition of the pores, or in fine their being too much contracted, or too open. Thus, he ſays, pains ariſe from the ſtagnation of the blood, and faintneſs from an extraordinary openneſs of the pores †.

To this whole mechanical ſyſtem, it may be objected, that as the ſimple ſolids are informed with a living active principle, this can never be laid aſide in our conſideration, eſpecially as we know that all their action, and the greateſt part of their ſtrength,

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* See Galen & Cœlius Aurelianus.

† Eraſiſtratus held ſomewhat ſimilar opinions, if we may credit his chief enemy, Galen, eſpecially as to a lentor of the fluids, and error loci; ſee Galen de Venæ Sectione contra Eraſiſt. Hiſt. Phil. & de Atra Bile.

depends upon this principle: thus a muſcle cannot be made to act in a dead ſubject, and will be torn to pieces by a third part of the weight, which it could have borne without inconvenience in the living body when contracted. The opinion of digeſtion being performed by trituration in the weak ſtomachs of men, and moſt other animals, is ridiculous enough, and is farther contradicted by our finding the bowels perfectly languid on firſt opening any living animal; that motion, which is ſuppoſed to be the periſtaltic one, only appearing ſome time after the admiſſion of external air. The trituration * in the conical veſſels is ſeemingly overthrown, by its being demonſtrated that the arteries, ſo far from growing ſmaller as they are ſubdivided, always

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* Douglas, on the Generation of Heat, ſuppoſes that the diameter of the ſmall arteries is leſs than that of the globules of blood, ſo as to occaſion conſiderable friction in tranſmitting them; whilſt Hales, in his Hæmaſtatics, ſuppoſes it twice as great for the purpoſe of avoiding friction.

increaſe in ſize [*], the ſum of the branches being conſtantly greater than the trunk. In explaining the action of the [†] heart and lungs, they ſeem to forget that a perpetual motion is no where to be found in mechanics. It may be likewiſe alledged that a ſmall evacuation, often weakens much more than a larger one, but of another kind, contrary to every tenet of the ſect; and to Pitcairn's opinion, and pretended demonſtration concerning the inteſtinal and cuticular diſcharges. Their theory of poiſons acting by means of ſpiculæ is abſurd: filings of iron, or powdered glaſs, are not poiſons, nor will the microſcope give us any information concerning the action of medicine, before they have been tried. It has been accurately demonſtrated * by the late ingenious Dr. Whytt, that ſympathy is not owing to any connection of nerves, independent of the brain. This ſect is not ſo happy with its motion, as the chymiſts with their ſalts and balſams, in preſerving the body from corruption; as it ſuppoſes that this very motion generates heat, which is known to be a principal agent in producing putrefaction. It may be granted that the power of ſome muſcles, particularly thoſe of the extremities, may be ſubjected to calculation; but when we endeavour to extend this to other organs, we proceed upon an erroneous ſuppoſition of their ſimilarity. We find that in ſphacelated parts, even large veſſels, when cut, pour out no blood, although were the circulation carried on

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[*] Cowper Phil. Tranſ. n. 280. Senac Traité du Cœur. Cole de Secretione Animali. Buſſiere, Lettre a M. Bourdelin. Pitcairn de Motu quo Cibi atteruntur. Keil de Secretione Anim. Helvetius Hiſt. de l'Acad. 1725. Sylva de la Saignée, Morgan's Mechanic Practice of Phyſic. Medical Eſſays, tom. 3d. Tabor Exercit. Med. Nichols Compend. Anat. Œconom. tom. 2d.

[†] See Perrault Mechanique des Anim. Clarellis Spirit. Anim. Exturb. Schaarſchmidt Phyſiol. Boerhaave Inſt. Med. n. 409. Lillie de Palpit. Cordis. Monro's Oſteology. Bellini de Cordis Motu, pr. 2.

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* See alſo Bayer de An. Aff. Ridley An. Cer. Perrault du Gout, Aſtruc, Kauw imp. f. Gautier Eſſ. de Phyſ.

by the mechanical force of the heart, the hemorrhage ought to be moſt copious, from the reſiſtance to the propelling force being leſſened. The uncertainty of the mechanical data may be ſhewn from Dr. Hales making the power of the heart, which Borelli had computed at 180,000 pounds, equal only to 51 pounds, and and Keil reducing it to one pound *. The ſecretions are not mere mechanical ſepa-

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* A great variety of claſhing opinions as to the circulation of the blood and power of the heart, (amongſt which the attraction of capillary tubes and expanſion of the air from heat, are numbered by ſome as cauſes) may be ſeen by conſulting Whytt Phyſ. Eſſays. Winſlow Mem. de l'Acad. des Sci. 1740. Thomſon Diſſert. Med. 1. De Gorter Excerc. 5. n. 2. Baker's Microſcope made eaſy. Andry Remarq. de Med. Pechlin de Corde. Ludwig Phyſiol. Boſſier in Hales Hæmaſt. Hutchinſon's Œconomy of the Human Frame. Huberus de Aere Electr. Bertier Phyſique des Corps Animés. Brun de Suct. Var. Cap. & Otia Phyſiol. Borelli, Jurin Phyſ. Math. Diſſ. Morland of the Force of the Heart. Tabor Exercit. Med. Hales Hæmaſt. Morgan Philoſ. Princip. of Med. Robinſon of Food and Diſcharges. Bernoulli de Vi Cordis.

rations of the different parts of the blood, inaſmuch as ſuch parts do not exiſt in it, nor can we, by any proceſs, make from it the ſmalleſt particle of bile, nor indeed any other liquor ſecreted in the body. Theſe are a few of the objections to this ſcheme; but it is impoſſible to go through the many falſities introduced by it into medicine, ſuch as, that ſlops, jellies, and broths are moſt nouriſhing, becauſe requiring little trituration, with numberleſs other novelties, equally void of foundation.

I haſten therefore to the laſt ſect to be particularized, which conſiders the human body as actuated by a living immaterial principle, upon which all its functions depend. This ſcheme is as ancient as any of the former, being expreſly adopted by Hippocrates, and perhaps by Aretæus, with * all the pneumatic tribe; ſo that to ac-

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* Chryſippus, Athenæus, Attalus, Archigenes, Agathinus, Magnus, Herodotus; alſo Wirdig, Mayow, Actuarius, Conſtantinus Afer, Campanella, Rogers.

count Stahl the father of it, would betray a total ignorance of the hiſtory of medicine. There is perhaps no doctrine, the Galenic alone excepted, which has ſo many votaries; for, independent of Stahl, Hoffman, and Boerhaave, thoſe compounders of different opinions into one heterogeneous maſs, called a ſyſtem, it has always had a place in the chymical creed; and perhaps it will be found that Paracelſus and Van Helmont carried their opinion of the univerſal influence of this principle, as far as any who have ſucceeded them.

In arranging thoſe as theoriſts, who deduce all the functions of the body from an immaterial agent, I am convinced I do them injuſtice, yet it is a rank which they have ever been ambitious of obtaining, though without ſucceſs, as long as they adhere ſimply to their firſt principle. All theory muſt be derived from ſome apparent or ſuppoſed reſemblance, nor can we poſſibly reaſon upon a thing, to which we have not ſeen or known ſome other analogous: whenever, therefore, a phyſician flies to a living ſentient principle, as the cauſe of any thing that occurs in the body, he ſhould inſtantly lay aſide all reaſoning, having nothing wherewith to compare it. This would have confined the ſect ſo much, that men of genius could not poſſibly have appeared in it, leſt they ſhould ſeem to approach odious reprobated empyriſm; to get rid therefore of the objection, they ſucceſsfully made uſe of fineſſe. Having applied terms to a number of effects eaſily demonſtrated in the human body, theſe, by a deception too frequent amongſt the philoſophers of this and the laſt century, are made to ſtand in the place of cauſes, for explaining their effects. And their authors have written ſo much in defence of them, confuſing their own heads, and puzzling their readers with a jargon of words, that they think they have brought themſelves and others to an implicit belief of all that has been advanced. Indeed, in ſome caſes, there is not a more expeditious road to fame, than to ſpeak or write unintelligibly, but with plauſibility; nor a more certain mode of doing ſo, than by a perſon's not underſtanding his own meaning, ſince with even more than the vulgar, the concluſion will ever appear valid, that he who is above their comprehenſion muſt be a great man. For this reaſon we have heard of late, irritability,* ſenſibility, ſpaſm, incitement, and collapſe ſuggeſted as the cauſes of moſt diſorders, with all the parade of affected knowledge, but real ignorance.

If we lay aſide this method of impoſing upon ourſelves terms, inſtead of things, we ſhall find our enquiry into the opinions of this ſect reduced to a very narrow compaſs, being no more than to determine where this immediate action of the ſoul is ſuppoſed to end, and that of other principles to begin; for the fabricators of this ſyſtem have conſtantly borrowed from thoſe already mentioned, although ſometimes, at very different parts in the œconomy.

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* Fantonus Anat. Corp. Hum. Bertin Diſſ. Mœrs de Nat. Whytt.

Thus, ſome ſeat the ſoul in the brain alone, from whence, by means of the nervous fluid acting either chymically or mechanically, or the nerves themſelves operating like tenſe chords, it gives ſenſation and motion to all the reſt of the body: ſome place it in the* heart, to give motion to the blood; or in the ſtomach, to attend to digeſtion; whilſt others extend it all over the frame, ſuppoſing that it ſees in the eye [*] and feels in the finger. They even imagine that this principle originally [†] forms the body, and defends it afterwards from that corruption and decay, to which the other parts of the frame are conſtantly tending. From its greater or leſs activity proceeds the difference of [‡] temperaments; hunger is regulated by [§] its will, the increaſe and nouriſhment of the body by its [||] election, and diſeaſes ariſe when its energy is any how diminiſhed or impeded.

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* Pythagoras makes that part of the ſoul, from whence the paſſions ariſe, reſide in the heart. Ariſtotle, Praxagoras, and Philotimus, place the ſoul in the heart. Plato lodges a part of the ſoul in the ſpinal marrow, a part in the head and heart, and another between the diaphragm and navel. It is likewiſe placed in the blood by Empedocles, in the head by Democritus, in the dura mater by Eraſiſtratus, in the ſtomach by Van Helmont, in the breaſt by Epicurus, in the pineal gland by Des Cartes, and throughout the whole body by Aſclepiades, &c. See Diogenes Laertius, Galen Hiſt. Philoſ. Ariſtoteles de Part. Anim. Plutarch de Plac. Phil. Phurnutus de Nat. Deor. Athenæus Deipnoſ. Van Helmont Jus duumviratus. Des Cartes de Paſſ. Le Clerc, p. 1. l. 4. c. 3. Cœlius Aurelianus Tard. Paſſ. l. 1.

As external cauſes cannot be ſuppoſed to act upon this immaterial principle, but by the intervention of thoſe ſolids to which it is ſo ſtrictly connected, and diſeaſes having been ſuppoſed to ariſe from the ſolids being moved too briſkly, or too ſlowly by this inviſible agent, medicines are therefore claſſed as ſtimulants, ſedatives, or antiſpaſmodics, from inciting or allaying this motion. After demonſtrating the different modes of this action, namely, tonic, which is the natural gentle contractions and relaxations, to which all parts of the human body, cartilages, and bones excepted, are liable; convulſive, which is a violent exacerbation of the former in the muſcles; and ſpaſmodic, which is a ſudden continual contraction in ſome part; and after ſhewing how theſe are governed by habit, and alſo the effects which they produce upon the quantity of the fluids in different parts, it is plain that every thing which is ſaid farther upon the ſubject, muſt be derived from ſome of the former ſyſtems *. I ſhall therefore diſmiſs this ſect with remarking, that when it aſſerts that the actions and functions of the

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[*] Stahl Phyſ. ſect. 5. Perrault du Toucher, Licetus, Behrens, Whytt Phyſ. Eſſ. Andreas de Irrit. Supprian. Stuart de Mot. Muſc. Woodward.

[†] Stahl, Tachenius.

[‡] Stahl. Theor. Ver. Phyſ. ſect. 1. memb. 5. art. 1.

[§] Stahl, p. v. Phſ. ſect. 3.

[||] Id.

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* Stahl derives diſeaſes from two material cauſes, a lentor of the fluids, and a tendency to putrefaction in them. Pathol. Gen. par. 1. ſect. 2. memb. 1.

body depend ſolely upon the living principle, and are not to be accounted for by any laws of chemiſtry or mechaniſm, it ſays what is perfectly true; at the ſame time it explains nothing; but leaves to us all that uncertainty and ignorance which I am afraid will ever be our portion, until we are freed from that very body, the actuating powers of which we are ſo anxiouſly deſirous of becoming acquainted with.

This is a ſuccinct view of the chief ſyſtems with which I am acquainted, for of thoſe who deduce diſeaſes from animalcules, the influence of the planets, meteors, dæmons, monades or atoms*, I make no account. I have choſen to claſs the different opinions of various authors, with the ſcheme to which they properly belong, rather than to follow the arrangement of every particular writer, which would have been an endleſs labour, each culling out, and putting materials of very diſſimilar natures together. Thus Boerhaave, in his account of digeſtion, adds the fermentation of the chymiſts to the concoction of Galen, and the trituration of the mechanics. It is plain, indeed, that through his whole ſyſtem, he aimed, by taking in the opinions of all parties, at intereſting every one in defence of a ſcheme where none could fail of finding his own opinion, and his deſign ſucceeded for a time. But if it appears from what has been ſaid, that the materials which all ſyſtems have uſed are bad, no building erected, by placing them in any particular manner, can be durable. Yet, notwithſtanding this obvious truth, we have been lately adviſed * not to wed ourſelves to a particular ſyſtem, but ſelecting ſuch parts of each as may ſuit our own opinions, from theſe to form a theory on which our practice ſhould be built. The advice is certainly well adapted to make theory cheriſhed; every phyſician in this manner being at liberty to make out a ſcheme, con-

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* Severinus, Crollius, Hartman, Campanella, Flud.

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* See Percival Eſſ. Dogmatiſt.

ſiſting of his own prejudices, and being afterwards at ſome pains to reduce it into form, it need not ſeem ſurpriſing if the doting tenderneſs of a parent ſhould prevent his ſeeing its faults and monſtrous deformity. The abſurdities likewiſe of each particular ſyſtem become leſs ſtriking, by not being extended to their proper length, and the diſſentient world can never hope to open the eyes of a perſon whom reaſon, opinion, and partiality, conſpire to render blind.

Having thus taken a ſurvey of the moſt remarkable hypothetical doctrines, let us now examine theory in general, and its conſequences upon the practice of phyſic; for it may be remarked, that no refutation of any ſingle hypotheſis can be ſufficient to effect a reformation, one head being no ſooner cut off, than, hydra like, another ſprings up in its room.

Here we ſhall find it endeavouring to weaken the ſtability of medicine, theoriſts conſtantly denying the facts laid down by each other. Thus one makes experiments upon the * blood, bile, or any other humor; a ſecond repeats the ſame, and finds the event different; a third ſees things oppoſite to either, and is himſelf overthrown by a fourth; from which we may not unnaturally be led to conclude, that circumſtances wherein nature varies ſo much, are not worth the pains of ſuch ingenious men, and are very unfit to found a ſyſtem upon. If the affair ſtopt here, however, we might be reconciled to it; but having learned the cuſtom of doubting each other,

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* Compare Harvey. Queſnay Œconom. Animal. Ent. Apol. pro Circ. Leal Hebd. Feb. Helvetius Mem. Boiſſier de Inflam. Hamberger Phyſ. Cheſelden Anat. Knight of the Cauſe of Heat. Everſten Exp. Boerhaave Præl. t. 2. Faſelius Diſſ. Langriſh Med. Practice. Schreiberus Almageſt. Frizimelica Ap. Welſch in Ictom. Boyle Apparat. Bergen Hæmatoſcop. Bohn Circ. Anat. Phyſ. Hartſoeker Extrait Critique. Leuwenhoeck. Camerarius Spec. Med. Eclect. Platner de Suppurat. Cohib. Adams, Phil. Tranſ. n. 325. Beſides Barchuſen, Needham, Jurin, Vieuſſens, Verheyen, Heyde, Newman, Macquer, Homberg, Flutton, Colbatch, of whom, and innumerable others, ſcarcely any two coincide.

they often extend it to thoſe poſitions which are warranted by unqueſtionable authors: thus I have heard Sydenham's veracity called in queſtion repeatedly, by an academician, where the honeſt old man's facts did not quadrate with the young one's theory. Is not this ſtriking at the root of phyſic? And, though it was mentioned as the fault of a ſtudent, yet it is too frequently practiſed by univerſity profeſſors, and conſequently of baneful influence. Let ſuch conſider, that if every one is to queſtion the accuracy and truth of another, whom will they have to vouch for their own?

The juſt doubt which is entertained of the facts alledged by theoretical writers, leads the world ſometimes to reject uſeful methods of treating diſorders, as ſeeming to be deduced from ſyſtem, and therefore to be conſigned to oblivion with their ſuppoſed parent. A proof of this I have endeavoured on a former occaſion to lay before the ſociety, in the now almoſt forgotten uſe of ſternutatories for the cure of deafneſs. How careful then ſhould we be of diſhonouring the legitimate offspring of our obſervation, by bringing it to light under the ſanction of hypotheſis.

Theoriſts have likewiſe introduced a light method of diſputing into medicine, being ſeldom anxious about which ſide they ought to take in a debate, as if our ſcience were a pit for champions to conteſt a victory of words in, and not a field for ſedate inquiry, relative to the moſt noble objects, the health and lives of mankind! Perhaps there is nothing which ſo materially injures the reputation of our ſcience with the world, as our idle debates upon the moſt frivolous ſubjects; for while the diſciples of Galen, Stahl, Hoffman, and Boerhaave, are diſputing how an effect is produced, though all agree that it really happens; it not being generally obvious how trifling the difference between them is, the art becomes naturally deſpiſed, appearing full of uncertainty: the diſagreement of phyſicians has been ſo long notorious, that it is now become proverbial.

Syſtematic writers often overlook, or take but ſlight notice of thoſe glaring facts which preſent themſelves to us every day, becauſe no honour could accrue from making uſe of ſuch common inſtruments, and draw concluſions which are to extend over all nature, from a few experiments and obſervations of their own *, and of which no one is thoroughly convinced but themſelves. We find them too ſo wedded to their particular ſcheme, that, Procruſtes like, they extend, lop, or maim every fact which cannot otherwiſe be brought to fit their ſyſtem. It would therefore ſeem much more profitable for us to ſpend our time in reading the works of the ſtandard

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* Thus we find ſome making the motion of the heart voluntary, becauſe it is ſaid an officer had the power, a little before his death, of ſtopping it at pleaſure. Cheyne Engliſh Malady. Medical Eſſays, t. 4. Urine has been proved to exiſt in the blood, becauſe a few perſons have vomited or paſſed by the ſkin, ſalivary glands, noſe, or breaſt, ſomething reſembling it. See Lanfranc Chirurg. Aretæus, lib. 2. c. 10. Schurig Gynæolog. Waller in Act. Upſal. Ephem. Nat. Cur. vol. 7. Journ. de Med.

practical authors, than in viewing them methodized by a ſyſtem writer, where the original meaning may be often loſt or changed, and where all that is added by the tranſcriber is of very uncertain authority. Nothing indeed ſhould be more cautiouſly received than any of their aſſertions reſpecting practice. In proof of this we may obſerve, that every medicine or method of treating diſorders which derive their ſource from theory, quickly fail; when the ſpring from whence they came, has loſt its force, while thoſe which ariſe from empiriciſm purſue their courſe without interruption. Thus bile became a favourite preſcription for a ſeaſon, pearls and gold have had their day; but are now almoſt forgotten: whilſt mercury, antimony, and the bark, gain additional renown.

Are theſe then the facts with which theory has ſo much enriched the ſcience, or ſhould we wonder that a phyſician does not chuſe to touch them, ſince unleſs it can be twiſted to his own ſyſtem, a Boerhaavian is as careful of uſing any fact ſet forth by a Stahlian, or he one by a Galeniſt, as if it contained a poiſonous quality? Shall we not treat them all as they do one another. It may be obſerved that the theoriſts always adhere to general aſſertions, as to the amendments which they have introduced into the ſcience; yet ſurely if their improvements were ſo very numerous as they would have us believe, it would not be ſo difficult to particularize them, nor to demonſtrate at leaſt one uſeful fact, or method of cure ariſing from their ſcheme.

Is it not ſomewhat remarkable that theory, an acquiſition of ſuch vaſt importance that a phyſician is inadmiſſible without it, ſhould never have been the cauſe of our finding out one good remedy, but on the contrary, has for a long period given every oppoſition to their introduction? This may be made ſufficiently clear by the hiſtory of bark, which is at preſent, after more than a century, only emerging from the load of undeſerved cenſure, and unmeaning reſtrictions that had been caſt upon it by theoriſts. Indeed in every part of the ſcience, they are the bane and conſtant oppoſers of all improvement; each eſteeming thoſe diſcoveries which do not coincide with his ſyſtem, old, unimportant, or erroneous. Thus after Harvey had demonſtrated the circulation of the blood, the writers upon that ſubject endeavoured for many years to diſprove * it, and at length, when the force of truth obliged them to acknowledge it, their whole efforts were turned to ſhew, that it had been always known from the days † of Hippocrates.

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* Nardius Noct. Genial. 10. Vander Linden in Hip. de Cir. Sang. Drelincourt in Epimetris Poſt. Diſſert. de Lienoſis Dacerius in Hip. de Dieta. Falconet Traité des Fievres. Philoſoph. Tranſ. n. 14. Annal. Julia, t. 1. Wieſs de Vet. Greciæ Re Medica. Bartholine Cent. Anat. 1. Garengeot Splanch. t. 2. Cleyer Spec. Med. Sinic. &c. &c.

† Riolanus Multis Libellis. Caſpar Hoffman Digreſſio de Circ. Sang. Licetus Epiſt. 37. cent. 1. Hombonus. Piſoni ultio Antiq. & Diſq. de Circul. Sang. Schillingius in Diſput. Leichner de Mot. Sang. Exercit. Anti-Harveyana. Reſtaurand Zed.

But I am unable to paint the theoriſt, as I behold him in his narrow cell, hedged in on all ſides by his ſyſtem; his timorous ſoul dares not look beyond it, nor enjoy the fair proſpect of nature in the bright face of day, leſt he might chance to ſpy any thing which ſhould create in him a doubt of his darling hypotheſis. Is any fact propoſed, which bears a reſemblance to his ſcheme, it matters not how trifling in itſelf, he eſtimates its value from the degree of ſupport which it gives to his favourite notions. Does any conſiderable improver appear, his innovations muſt be oppoſed, leſt the whole theory ſhould be endangered, to which the lives of men are as nothing in the balance. With the narrow compaſſes of his ſyſtem, he pretends to take meaſure of the univerſe, and arrogantly ſays to nature, thus far ſhalt thou go, and no farther. It is aſtoniſhing how much a ſyſtem can depreſs the greateſt talents. Let us look

Med. Gal. p. 5. Leiſter Prim. Lin. Syſt. Nov. Med. Primroſe, Æmilius, Pariſanus.

into Cicero's Treatiſe on Oratory; where is that rapid eloquence, whoſe torrent carried irreſiſtible conviction to the hearts of all his hearers, and bore down even Cæſar's mighty genius; where is that ſoothing manner in which he almoſt perſuades the young to wiſh for old age; where all his rational, all his moral powers? All buried under a ſyſtem, dull enough to be miſtaken for the production of ſome modern theoriſt. 'Tis only ſtupid labour that can ever excel in this; men who were at their formation intended for the moſt ſervile employments, but whoſe parents, or more evil fortune, have placed them in ſome noble walk of life, where, endued with no faculties to diſcern the true beauties of nature, they defile every thing that paſſes through their hands.

With how many thouſand terms have theoriſts clogged the art, ſo that each ſyſtem requires almoſt a dictionary for itſelf? Is this the way to render eaſy the ſtudy which Hippocrates thought too much for the longeſt life; beſides, have they not introduced thereby the greateſt confuſion; as what can be a greater ſolecism, than a chymical phyſician telling us, that the *concoction* of the aliment is performed by *fermentation*, or a mechanic aſſerting the ſame to be owing to *trituration*? This multiplying terms and definitions, has beſides another bad effect, by diſcouraging every man from ſtudying the art, who does not intend to practiſe it for gain. Yet I will venture to aſſert, that no ſcience has been ever properly improved, until applied to by diſintereſted enquirers. Who is he that thinks our art ſhould be concealed in order to obtain reſpect? Let him not mix with our profeſſion; his narrow diſingenuous principles, though they cannot leſſen its native candour and dignity, yet may lead men of weak underſtandings, or thoſe who have not examined its worth, to meaſure it by the ſtandard of ſuch a ſelfiſh quack.

Theory, inaſmuch as it places the foundation of practice upon reaſoning and not upon ſucceſs, diminiſhes the attention of its votaries to the latter, than which there is not an error more deſtructive to the community, nor which ſo materially affects our confidence in the records of art. Few there are indeed, even of thoſe that publiſh their dictates to the world, who know upon what ground our opinion of of any particular practice ſhould be built; moſt having firſt taken it up from ſyſtem, perſevere in it afterwards becauſe the majority of their patients do not die; never reflecting that it is ſometimes probable more would not have periſhed had they totally abſtained from medicine, nor ever comparing the ſucceſs of thoſe who practiſe in an oppoſite way to their own. Beſides, many epidemic diſorders are ſo little dangerous, that ſcarcely one periſhes of all thoſe who are treated in as different methods as poſſible; thereby giving credit with the inattentive to every trifling remedy, or even to ſuch as at another period may prove highly deſtructive. We ſhould not aſcribe to our treatment all the perſons who recover under it; the ſurplus only of thoſe who are preſerved in following it, above the number who ſurvive without any medical aſſiſtance, in the ſame diſorder, and at the ſame time, are fairly to be placed to its account. Hence the great importance of compariſon is obvious in our ſcience. But of all theſe circumſtances the true theoriſt is * almoſt regardleſs, and whilſt his mind ſhould be taken up with the minuteſt inveſtigation of what paſſes around him, he retires within himſelf to ſearch into abſtruſe cauſes, and invent arguments from thence in ſupport of his practice, as if a knowledge of diſeaſes were only to be gained in the cloſet.

I might aſk, have we remedied fevers, apoplexies, or conſumptions, better on account of knowing the circulation of the blood,

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* I do not mean throughout this diſcourſe to miſrepreſent theoriſts in the ſame manner they have commonly done empiriciſm, by ſaying that they entirely reject facts and experience from their ſcheme; but only to ſhew how little deference they pay to any, excepting ſuch as tend to ſupport their ſyſtem.

blood, or the anatomy of the head and lungs. The buſineſs of a phyſician is to cure, remedies are therefore of more uſe to him than reaſons, the latter being ſafely left to the philoſophers who have nothing elſe to do.

Theoretical cauſes are too general to be of any ſervice in practice: thus gout, ſcurvy, conſumption, ſcrophula, fever, leproſy, and many other diſeaſes, have been all attributed to an acrimony of the blood: but of what uſe can this be, except to miſlead young practitioners with an opinion of their ſimilarity? We have for upwards of two thouſand years been throwing away the time and pains of the medical world to find out the hidden cauſe of a fever, yet that empiric who firſt taught us the uſe of the bark, did more real ſervice to mankind, than ten thouſand ingenious men with all their theories. If even evident cauſes indicated the treatment of a diſorder, ſurely the bite of a viper would not have been ſo long almoſt incurable, nor that of a rattle-ſnake or mad dog even yet be a diſgrace to the profeſſion, notwithſtanding all our boaſted antidotes. When a tendon is torn, does a knowledge of this cauſe teach us how to prevent the locked jaw, which ſometimes ſucceeds?

The empiric, it is true, makes uſe of evident cauſes, but then it is only as marks of the diſeaſe. Thus he knows that a wound from any cutting inſtrument, or the bite of a mad dog, vary in their method of cure; and that the ſame ſymptoms ariſing from a blow upon the head, or from improper food taken into the ſtomach, muſt be treated very differently; yet he pretends not to deduce theſe differences from any knowledge of the ſtructure of the body or nervous ſyſtem, but only from experience, and the obſervation of authors.

We ſhould be diſcouraged from writing hypothetically by ſeeing that ſuch books, though perhaps compoſed by men of acute parts and indefatigable application, miſerably failing in the end, are eſteemed but for a ſhort period, and as ſoon as the preſent opinions die, are thrown aſide to deſerved oblivion, whilſt the works of Hippocrates, Sydenham, and a few others, increaſe in fame more than in antiquity; the value of every medical author being eſtimated by ſucceeding ages from the proportion of empirical truths contained in his works. It may be remarked, that all our beſt practitioners are the worſt theoriſts, and there is ſcarcely a ſtudent who has been two years at a college, that would not be aſhamed of the theories propoſed by the above mentioned authors, and who would not baffle, in hypotheſis, the oldeſt practitioner of the art: need we a ſtronger proof of its inſufficiency?

Shall I object to theory, the cruelty with which it ſteels that heart, whoſe brighteſt ornament is ſenſibility? I fear the evil is too far gone for redreſs. Not to mention Herophilus and Eraſiſtratus *, thoſe diſ-

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* Celſus Præf. "Herophilus & Eraſiſtratus qui nocentes homines, a regibus ex carcere acceptos, viros exciderint, conſiderarintque etiamnum ſpiritu

ſecters

ſectors of living men, who can read the experiments of the preſent days without a ſhuddering horror. Behold the anatomiſt, after having cut off the head or torn out the heart of ſome animal, given as a faithful guard or affectionate companion to the human race, his ſtop-watch in his hand, minuting its expiring throes, counting the looks, ſteps and ſmalleſt motions of its laſt agonies, offering to it even its own entrails to devour. Obſerve the ſavage pleaſure with which he relates the reſult, becauſe it happens to ſupport ſome peculiar fancy of his own, or deſtroy that of his antagoniſt. Then let thoſe who have the ſmalleſt degree of humanity re-

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remanente ea quæ natura ante clauſiſſet:" and again, " vivorum hominum alvum atque præcordia incidi, & ſalutis humanæ præſidem artem, non ſolum peſtem alicui, ſed hanc etiam atrociſſimam inferre." Tertull. de An. c. 10 & 25. Gal. Adm. An. For later facts of a ſimilar complexion ſee Le Noble Obſervationes raræ & novæ de Venis, Meſentericis, & Thoracicis, deprehenſæ in Corporibus Humanis bene naſtis, & poſt quatuor Horas ſtrangulatis, mox ejuſdem propria Manu publice diſſectis.

maining, pronounce whether ſuch barbarians are to be truſted with our lives, or ſuffered to educate our youth in their unfeeling principles. O, ſoft compaſſion, thou beſt inſtructor of the heart! let phyſicians never deſert thy dictates; let it not be ſaid that thoſe who ſhould be principally intereſted to enforce thy divine precepts, are become the chief preachers and examples of cruelty! Had all the ingenious torments, to which animals have been wantonly expoſed, produced a ſingle beneficial alteration in the practice of medicine, the advantage accruing to man might have been ſome apology; but, on the contrary, that ſtudy which muſt harden the heart, and render its abettors totally unfit for a profeſſion requiring all the delicate ſenſibilities of the mind, has been only directed to aſcertain whether the ſoul reſides in the head or heart, or ſome ſuch unimportant end.

Syſtematic writers have too little conſidered the moſt uſeful part of a phyſician's knowledge, I mean thoſe diſorders which are ſeen every day, whilſt they have been tediouſly particular in deſcribing ſuch as ſeldom occur: thus Boerhaave, in ſo conciſe a work as his Aphoriſms, allots ten pages to the apoplexy, nine to the rabies canina, and ſix to the epilepſy; whilſt on epidemic diſorders he has not two, and the fluor albus and hyſteric complaints are not treated of in the work. From this a novice might be led to imagine, that the former diſtempers are moſt frequent, as he could never conceive, that in proportion to the infrequency of the diſeaſe, and the improbabilty of cure, a greater part of his time was to be employed in ſtudying it, and that nine tenths of the maladies of mankind, and ſuch eſpecially as he could remedy, were not to claim any ſhare of his attention. In the diſtribution of the cauſes of any particular complaint, they give riſe to a ſimilar error, thoſe being placed firſt which agree beſt with their ſcheme, whilſt the moſt frequent are perhaps left to the very laſt.

The idea of a ſyſtem precludes all future improvement in any ſcience, inaſmuch as it ſuppoſes a perfection in our knowledge, which is far from being the caſe in medicine: beſides, it miſleads us from the only uſeful part of the ſtudy, an attention to facts. The boldneſs and conceit with which ſyſtems fill young minds is inconceivable, and the injury done to the health of mankind proportionably great. No ſooner is a phyſician looſed from the trammels of a college, than, convinced of the infallibility of theory, he begins to preſcribe with as much confidence as if he knew the hidden cauſes, and could cure all diſorders. Does bad ſucceſs moſt frequently attend his practice, ſtill ſome ſmall error, or omiſſion in the patient is found out, to which, and not to his management, the continuance of the diſorder is aſcribed; as if the human frame was of that ſlight texture, alledged by ſome anatomiſts, and liable to be diſordered by the moſt trifling cauſes, the contrary to which we ſee every day. Blindfolded in this manner, ſome go on during life; or if their eyes happen to be opened, they fall into an oppoſite extreme, and with their theory give up all opinion in the practice alſo, thinking it only an artful cheat to deceive mankind; or at beſt, a pardonable and neceſſary mode of lulling their fears, wherein it is moſt for their advantage to attempt little with powerful remedies.

We are told by ſome, that ſyſtem is only introduced to aſſiſt us in arranging our facts, ſo as to be able to make uſe of them readily. But will empiriciſm afford us no arrangement from ſimilarity, and muſt we ſwallow definitions and terms, as barbarous as thoſe of logicians, for ſo trifling an end? Does not Sauvage's method, which has been ſo much admired and adopted, appear almoſt entirely empirical? Theory might have perhaps been profitable, if only uſed as the ſervant of practice; but, unluckily, as ſoon as it gets footing in the houſe, it becomes a moſt inſolent director, turning out of doors all ſuch facts as it cannot aſſociate with, and telling its maſter that he muſt not ſee with his own eyes. Thus the uniform obſervation of ten thouſand practitioners is often obliged to give way to ſyſtem, or to ſome analogical reaſoning or experiments quite foreign to the ſubject; and it may with truth be aſſerted, that madneſs itſelf can conceive no whim which has not been at one time or another ſupported by theory. Obſervation has not only the trouble of ſhewing us what is proper, but alſo of pointing out what opinions and practices ariſing from theory, are improper and injurious. What difficulty has there been to combat the warm regimen in the ſmall pox, becauſe it was ſuppoſed to throw out morbid matter? The ſame may be ſaid of the preſent practice in malignant fevers, and perhaps the plague.

Specific medicines have been accounted the offspring of empiriciſm; and evacuants, of reaſoning. But this is not true; the effects of the latter, and their power of curing diſorders, being known only from experience. Who indeed could ſay that jalap would purge, and hippo vomit, but from obſervation, or pronounce the latter ſalutary in many dyſenteric caſes, until experience had evinced it? The only real difference is, that the effect of medicines introduced, or much praiſed by theoriſts, are not known with the ſame certainty as thoſe of the ſpecific or empirical kind.

It has been ſaid, that our experience will be in danger of deceiving us, unleſs we bring it to the teſt of theory, which alone can teach us what is to be believed of the numberleſs contradictory facts and obſervations found in medical authors. If indeed we eſteem an empiric to be without judgment, and even lower than the brute creation, as ſome have delighted to paint him, the concluſion might be right. But ſuch may be told that the true empiric is the leaſt credulous * of all mortals.

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* Of the credulity of theoriſts many inſtances might be given; the following, not the moſt remarkable, may be ſufficient. Mead and Baglivi take great pains to account for the effects of muſic

His brain is not a mere ſtorehouſe, where every opinion is depoſited with equal care, neither has he learned from the theoriſt to place implicit confidence in the words of any maſter; but when contradictory facts occur, he makes uſe of all his reaſoning powers to examine which may be truſted. Let not the theoriſt think that he here encroaches upon his province, ſince he flies for his determination to no hidden alteration in the ſolids or fluids, no morbid miaſmata, nor active virus, no ſpaſm, obſtruction, nor, in ſhort, any ſuppoſed internal cauſe. On the contrary, his data are only ſuch effects as have been atteſted by the beſt writers, and his own experience, which compared with the preſent facts offered for his approbation, muſt enable him to form an opinion of their credibility.

in curing the bite of the tarantula, although it is now more juſtly believed that no ſuch fact ever exiſted. See Edinburgh Phyſ. and Lit. Eſſays, vol. 3. art. 4. The view indeed of theoriſts has been ever to aſcertain their facts chiefly by their ſuppoſed ability to explain them.

The diſpute between theory and empiriciſm is not whether we ſhall reaſon in medicine, but whether we ſhall with the former deduce our concluſions from hidden cauſes, or with the latter confine ourſelves to facts and experience. If we are to admit facts with great caution in medicine, ſhall we try them by theory? What man in his ſenſes will try any thing by a ſtandard more uncertain than the thing itſelf? And whether theory be not ſo, let thoſe pronounce who have read the many thouſand volumes written upon it, of which no two perfectly agree, and wherein the followers of each great leader are endeavouring to ſhew the futility of all the reſt. Aſk a Stahlian whether the mechanic theory is to be the teſt of our practice; or an abettor of the latter, whether we ſhall examine it by the precepts of Galen. Experience, it is true, may in a few caſes ſeem to deceive us for a time, but future experience muſt ever ſet us right, as if the ſame effects continue ſteadily to be produced for a length of time, the firſt could not have been a deception. It may alſo be aſſerted, that we have few contradictory facts recorded by empiriciſm. When Galen and Boerhaave praiſe venæſection in many diſorders, and Eraſiſtratus and Van Helmont condemn it, each derives his opinion from, and ſupports it by theory; and though all plead their experience, yet the empiric ſees that it is the experience of men prepoſſeſſed and biaſſed by a favourite ſyſtem, and that he muſt therefore receive their aſſertions, even as to matters of fact, with great circumſpection.

The common method of refuting empiriciſm has been to deny its profeſſors all the minutiæ of the practice, or, in other words, experience; and having thus deprived them of the whole eſſence of their ſcheme, and that from whence alone they pretend to draw their knowledge, it is not difficult to prove their inſufficiency in the art. But if by empiriciſm be meant experience, which every definition of the term implies, that experience muſt not be a partial one, as ſome have choſen to deſcribe it, nor can it be bounded by general concluſions, theſe being only the children of theory, and its vain pretences of knowing the limits of all nature. Empiriciſm, if it act conſiſtently, is ſo far from attending only to the leading ſymptoms in a caſe, that in reality it never ſuppoſes a leading ſymptom to exiſt, that being the peculiar ſuppoſition and defect of ſyſtems, which has nevertheleſs been ingeniouſly turned by ſome into an objection to * empiriciſm; and ſurely happy are they in argument who can charge as an error to any ſcheme, what it uniformly denies. Is an empiric conſulted for a head-ach, he knows from the experience of himſelf and others, that according to a variety of other ſymptoms, and the conſtitution of the patient, he muſt vary his treatment in order to perform a cure; and although he does not pretend to underſtand the internal origin nor obſtruſe nature of the malady, he will not indiſcriminately apply his vomits, bit-

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* See Percival Eſſ. Dogm.

ters, ſtomachic cordials, nor cephalic plaſters, becauſe experience tells him they will not be ſucceſsful but in particular caſes. In the gutta ſerena alſo he finds blindneſs accompanied by a dilatation of the pupil, ſometimes without any other defect or pain; in other caſes, attended with head-achs: can he not enquire what method of treatment has proved ſucceſsful in ſimilar caſes ariſing from like known cauſes, and from thence adopt a ſteady practice, unattended with confuſion or danger, although he is unacquainted with the principles of optics, and the ſuppoſed nature of the nerves and retina * ?

I know it has been faſhionable of late to confound empiriciſm and quackery together, and the illiberal artifice is only worthy of the cauſe which it is brought to ſupport. The merit of empiriciſm and theory may be readily compared, by enquiring which demands the greateſt ſtudy and

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* Theſe diſorders are quoted for an oppoſite purpoſe by Dr. Percival, Eſſ. Dogm.

abilities to become maſter of. In this view, the empiric, having no general ſyſtem or principles to lean upon, which are eaſily attained, and in perceiving the exceptions to which an accurate knowledge of phyſic may be ſaid to conſiſt, is obliged to know all the facts authenticated by medical writers ſince the firſt dawnings of the ſcience. How great a ſtudy! How immenſe a field for judgment to diſcriminate truth from falſhood in, and to diſtinguiſh in what manner a fact has been altered by the preconceived opinion of the relater! Whereas on the other hand, theory, inaſmuch as it proceeds upon leading ſymptoms and general cauſes, which is only a more ſpecious way of treating a diſorder by its name, may be called genuine, though pompous quackery. To give an example in a fever, the diſeaſe upon which theory has laboured more than upon all others. The empiric, on being called to ſee the patient, conſiders that any method hitherto known, although it may have proved ſucceſsful in ſome caſes, yet has failed in others, where the circumſtances were ſomewhat different. He therefore diligently enquires what are the preſent ſymptoms of the caſe; how the perſon was firſt ſeized, and from what known cauſe; what employment he followed when in health, and of what habit of body and age he is; whether he had ever been liable to the ſame or ſimilar diſorders, and by what means he was relieved; how long the preſent complaint has laſted, and what treatment he has undergone for it: and comparing all theſe, together with the time of year, and the prevailing fevers and other concominant diſorders, with what he has formerly read or known of ſuch fevers, he forms his plan of treating it, not from uncertain reaſoning, but from the experience of ages. On the other hand, the theoriſt, convinced that in all fevers, the indication is, either to remove the ſpaſm on the ſurface, and to prevent its recurrence; to conquer the ſuperabounding bile or acid; to remove the obſtruction of the capillaries; or, perhaps, finally, to diſcharge the contagious, acrid, putrid, or ſaline particles from the blood; which ever of theſe ſyſtems he embraces, there ſeems to be but little occaſion for enquiry, except juſt ſo much as may ſatisfy him that it is a fever, and not give diſcontent to the patient's friends, his only view being to enter immediately upon his operations, with antiſpaſmodics, evacuants, deobſtruents, or ſudorifics. Are the lives and health of mankind thus ever to be the ſport of a jargon of words, whoſe meaning even has never been ſettled by the authors who uſe them? Is the loweſt and baſeſt quackery thus continually to aſſail us under the appearance of learning and deep ſtudy?

We may remark that Celſus and even Galen allow empirics to reaſon from reſemblance or analogy, which I willingly, however, give up in defending their ſcheme, as I think that in the hands of theoriſts it has been the ſupport of many falſe concluſions. We ſhould more carefully guard againſt this than perhaps any other error, as it approaches often ſo near the truth, that it intereſts our reaſon on its ſide. Thus have many medicines been rejected, becauſe they produce no ſenſible effects upon the body when in health, and it may be ſuſpected that the bark would have ſhared the ſame fate, had not its virtues in diſeaſes been too evident to admit of doubt. Others have been laid aſide becauſe poiſonous to ſome of the animal creation. The doſe of medicines in a diſeaſe has been alſo regulated by the quantity which may conveniently be given in health, or in another diſeaſe. All which analogies, though obviouſly as cloſe as reaſon can afford, are fraught with falſhood and impoſition.

Theory, or reaſoning from analogy, may be defenſible in an unknown diſeaſe or caſe, where experience has given no judgment; but making uſe of it in any other, is as ridiculous as if a man who deſired to find the way to a particular place, ſhould firſt cloſe his eyes, and then endeavour to grope it out.

If what I have ſaid has any weight, it will appear, that the empiric has every advantage which theory can boaſt from reading and obſervation, without all thoſe caprices, that are by ſome dignified with the title of ſuperior knowledge *, underſtanding, and judgment; the way therefore to improve the art cannot be difficult, being ſimply that of empiriciſm, by which I mean experience; for quackery I deſpiſe, and moſt of all theoretical quackery, which is often the art of ſpeaking without a meaning, and ſeeming learned without common ſenſe.

Let us then view theory and empiriciſm; both endeavouring to obtain our approbation; but by very different means. The former boldly parading in all the tinſel dreſs of fancy; varying her charms to ſuit the taſte of every beholder; promiſing to her votaries the giddy admiration of all the young, thoughtleſs, and inexperienced; offering us preſent fame without laborious

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* See Percival, Eſſ. Dogm.

ſtudy,

ſtudy, and powerful ſupport in all the errors of our judgment, or moſt excentric wanderings of our imagination; committing all her former admirers to oblivion, in order to make way for us. See at the ſame time her right hand red with the blood of myriads ſacrificed to that obſtinacy with which ſhe follows her opinions for the day, though perhaps to change them on the next. Obſerve her parent pride, and the inſignificant medicines her children, together with the caprices her train, as numerous as the blades of graſs in the field, and as various as the flowers that enamel it; all ſhielded with ſelf-conceit, againſt the attacks of truth, and armed with the ſharpeſt ridicule, againſt thoſe who will not comply with her deſires.

View on the other hand empiriciſm, with her ſlow and modeſt ſtep, ſcarcely obtruding herſelf to our eyes, much leſs to our admiration; uſing no meretricious careſſes to entice us; promiſing no immediate reputation, nor emoluments, but rather the contrary; unfolding to us the records of ages, which, by a tedious application of many years, we muſt become maſters of, in order to obtain her favour; telling us that we muſt, like the induſtrious bee, ſelect honey, even from amidſt the poiſon of theoretical writings; offering us no ſhield but an approving mind, againſt the ſlander, and what is more grievous, the contempt of the world, miſguided by her rival; propoſing to us a life of application, care, and pains, without reward or glory, until we ſhall ceaſe to be ſenſible of them, if even then, in conjunction with time and truth, ſhe ſhall fortunately be able to do us juſtice. The choice is then in us, and may we, ſcorning the artful blandiſhments of theory, attach ourſelves only to experience, ſenſible that in ſo doing, we ſhall beſt fulfil all our duties, as uſeful phyſicians and good men.

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